



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,085	04/12/2005	Zi-Hua Jiang	JIANG4A	3733

1444 7590 08/17/2007  
BROWDY AND NEIMARK, P.L.L.C.  
624 NINTH STREET, NW  
SUITE 300  
WASHINGTON, DC 20001-5303

EXAMINER
----------

MAASHO, KERIMA K

ART UNIT	PAPER NUMBER
----------	--------------

1645

MAIL DATE	DELIVERY MODE
-----------	---------------

08/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/502,085

**Applicant(s)**

JIANG ET AL.

**Examiner**

Kerima Maasho

**Art Unit**

1645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-81, 83-90 and 92-100 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-81, 83-90, and 92-100 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-68, 72-81 and 100, drawn to a method of stimulating the immune system with an immunostimulatory molecule.

Group II, claim(s) 69-71 and 92-99, drawn to an immunostimulatory molecule comprising an oligonucleotide whereby the nucleosides are joined by internucleoside linkage which links segments to each other to form a branched structure.

Group III, claim(s) 83-84, drawn to an immunostimulatory molecule comprising an oligonucleotide strand with fewer than 8 nucleotides, with at least one CxG dinucleotide and at least one covalently incorporated lipophilic group.

Group IV, claim(s) 85-90, drawn to an immunostimulatory molecule comprising an oligonucleotide strand, with at least one CxG dinucleotide and at least one covalently incorporated lipophilic group, and an epitope.

2. The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I is drawn to a method of stimulating the immune system of a subject by administering an oligonucleotide strand which comprises nucleotides and a covalently incorporated lipophilic group. The technical feature of group I is not special in view of the teachings of Cheng et al (US patent 5,646,126). Cheng et al discloses double stranded oligonucleotides having a lipophilic group attached in the treatment of cancer. Groups II-IV are drawn to different molecules, an internucleoside that links segments to form branched structure; an oligonucleotide that has a covalently incorporated lipophilic group; and an oligonucleotide that has a covalently incorporated lipophilic group with an

Art Unit: 1645

epitope. Groups II-IV have technical features that make them different from one another for example: their structural features, and their immunogenicity due to the presence or absence of an epitope.

As such groups I-IV drawn to the above methods and molecules lack unity of invention because the technical feature of group I is not "special" in that it does not define a novel contribution over the prior art.

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

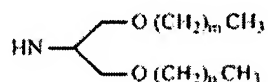
The species are as follows:

A) Lipophilic group is



where n=an integer with values ranging from 6 to 26

b)

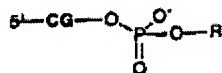


where m and n are independent integers with values ranging from 6 to 26,

c)  $--XR$  wherein X is  $--O--$ ,  $--S--$ , or  $--NH--$  and  $--R$  is aliphatic, and

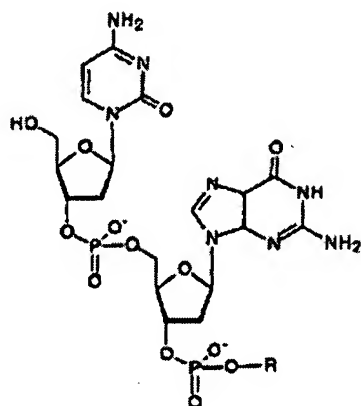
d)  $--XR$  wherein X is  $--O--$ ,  $--S--$ , or  $--NH--$  and  $--R$  is at least partially aromatic.

e)

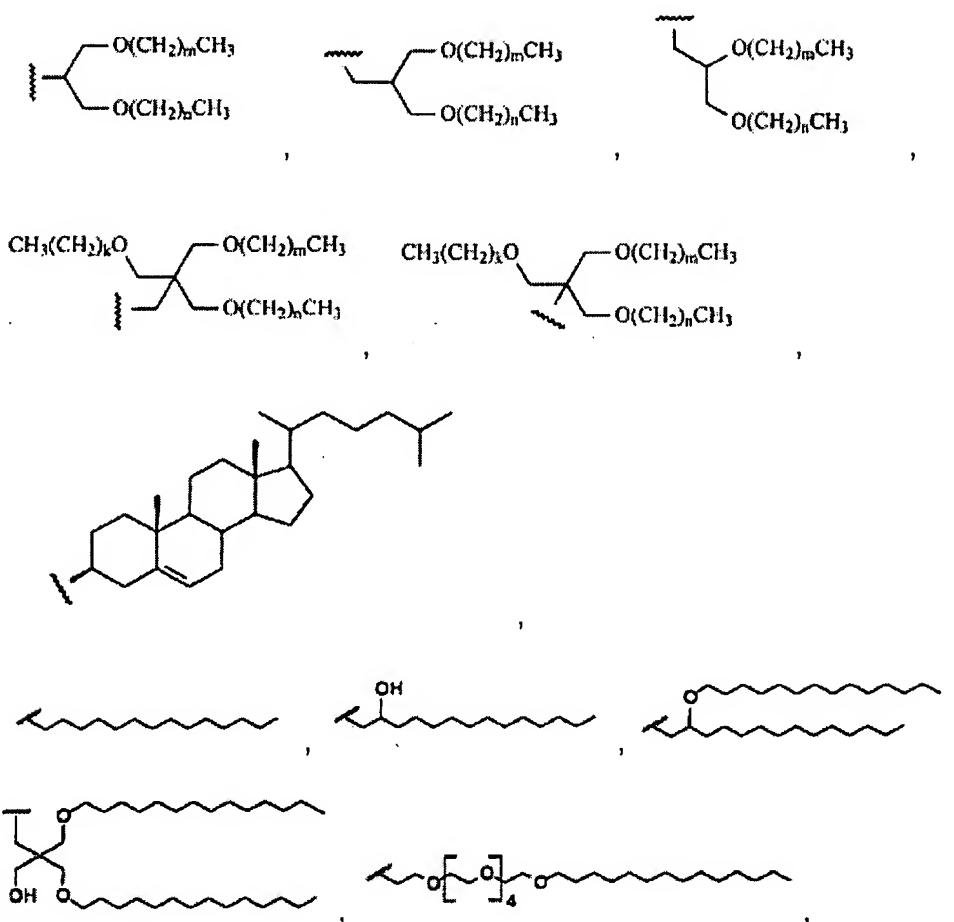


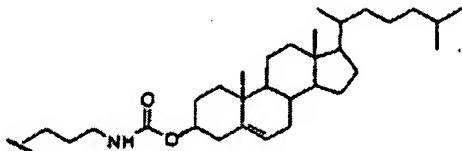
f)

Art Unit: 1645



B) R is selected from





- C) Monosaccharide is: pentose, aldose, cyclized, pyranose, a ribose or 2-deoxyribose.
- D) a strand is DNA or RNA
- E) Lipophilic group is incorporated into a free end, 3' end, internucleoside linkage
- F) Linker Z is: aliphatic, -[small alkyl-O]<sub>n</sub>, or -[CH<sub>2</sub>CH<sub>2</sub>O]<sub>n</sub>-
- G) The non-natural nucleoside comprising internucleoside linkage that is: not a phosphate group, is a phosphate group or -phosphate group linker Z-phosphate group-
- H) Dinucleotide unit is a PNA oligomer, or GNA oligomer
- I) Epitope is: carbohydrate, peptide, B-cell, T-cell, MUC1
- J) Internucleoside linkage is: poly (N-vinyl), poly (methacryloxyethyl) or poly (ethylenimine)

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims

Art Unit: 1645

are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

4. The claims are deemed to correspond to the species listed above in the following manner:

A) Claims 9, 11

B) Claims 10, 11

C) Claims 22, 23, 24, 25, 26

D) Claim 30

E) Claims 31, 32, 34

F) Claims 46, 47, 48

G) Claims 49, 50, 51

H) Claims 53, 54

I) Claims 60, 61, 62, 63, 64, 86, 87, 88, 89, 90

J) Claim 100

The following claim(s) are generic: 1, 4-8, 12-14, 20, 21, 59, and 85.

5. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

The molecules share no special technical feature because they have different structural features and chemical properties. As well as that a molecule comprising an epitope will have a different functional property than a molecule without an epitope in eliciting a specific immune response.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### **Conclusion**


Claims 1-81, 83-90, 91-100 are subject to restriction/election requirement.

Art Unit: 1645

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerima Maasho whose telephone number is 571-270-3055. The examiner can normally be reached on Monday-Thursday, 7:30am-5:00pm, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0906. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



/Kerima Maasho/  
Patent Examiner, Art Unit 1645

/Jennifer Graser/  
Primary Examiner, Art Unit 1645